Health Consultation

Old Milltown Mall
Edmonds, Snohomish County, Washington

March 31, 2003

Prepared by

The Washington State Department of Health
under a cooperative agreement with the
Agency for Toxic Substances and Disease Registry

Washington State Department of Health

Foreword

The Washington State Department of Health (DOH) has prepared this health consultation in cooperation with the Agency for Toxic Substances and Disease Registry (ATSDR). ATSDR is part of the U.S. Department of Health and Human Services and is the principal federal public health agency responsible for health issues related to hazardous waste. This health consultation was prepared in accordance with methodologies and guidelines developed by ATSDR.

The purpose of a health consultation is to identify and prevent harmful human health effects resulting from exposure to hazardous substances in the environment. Health consultations focus on specific health issues so that DOH can respond quickly to requests from concerned residents or agencies for health information on hazardous substances. DOH evaluates sampling data collected from a hazardous waste site, determines whether exposures have occurred or could occur, reports any potential harmful effects, and recommends actions to protect public health. The findings in this report are relevant to conditions at the site during the time of this health consultation, and should not necessarily be relied upon if site conditions or land use changes in the future.

For additional information or questions regarding DOH or the contents of this health consultation, please call the health advisor who prepared this document:

Barbara J. Trejo
Washington State Department of Health
Office of Environmental Health Assessments
P.O. Box 47846
Olympia, WA 98504-7846
(360) 236-3373
FAX (360) 236-3383
1-877-485-7316
Web site: www.doh.wa.gov/ehp/oehas/default.htm

For more information about ATSDR, contact the ATSDR Information Center at 1-888-422-8737 or visit the agency's Web site: www.atsdr.cdc.gov/.

Glossary

Acute	Occurring over a short time.
Agency for Toxic Substances and Disease Registry (ATSDR)	The principal federal public health agency involved with hazardous waste issues, responsible for preventing or reducing the harmful effects of exposure to hazardous substances on human health and quality of life. ATSDR is part of the U.S. Department of Health and Human Services.
Chronic	Occurring over a long time (more than 1 year).
Comparison value (CV)	Calculated concentration of a substance in air, water, food, or soil that is unlikely to cause harmful (adverse) health effects in exposed people. The CV is used as a screening level during the public health assessment process. Substances found in amounts greater than their CVs might be selected for further evaluation in the public health assessment process.
Contaminant	A substance that is either present in an environment where it does not belong or is present at levels that might cause harmful (adverse) health effects.
Exposure	Contact with a substance by swallowing, breathing, or touching the skin or eyes. Exposure may be short-term (acute), of intermediate duration, or long-term (chronic).
Hazardous waste	Potentially harmful substances that have been released or discarded into the environment.
Model Toxics Control Act (MTCA)	The hazardous waste clean-up law for Washington State.

Organic	Compounds composed of carbon, including materials such as solvents, oils, and pesticides which are not easily dissolved in water.
U.S. Environmental Protection Agency (EPA)	Established in 1970 to bring together parts of various government agencies involved with the control of pollution.
Volatile organic compounds (VOCs)	Organic compounds that evaporate readily into the air. VOCs include substances such as benzene, toluene, methylene chloride, and methyl chloroform.

Background and Statement of Issues

The Washington Department of Health (DOH) has prepared this health consultation report in response to a request from the Washington Department of Ecology (Ecology) to review the January 2003 document, *Indoor and Ambient Air Sampling and Analysis Plan for the Old Milltown Mall*.[1] The purpose of the review is to evaluate whether appropriate indoor air sampling is planned for the Old Milltown Mall, where building occupants reported adverse health effects. This report, prepared in cooperation with the Agency for Toxic Substances and Disease Registry (ATSDR), summarizes DOH's response to the proposed plan.

The Old Milltown Mall is located at 201 - 5th Avenue South within the commercial district of the city of Edmonds. The mall occupies a building that was formerly used for manufacturing and maintaining buses and servicing automobiles. Only limited environmental investigations have been conducted at the property. However, subsurface petroleum contaminated soils were identified at an abandoned underground storage tank (UST) located next to the building, near 5th Avenue South, and petroleum contaminated sediments were identified in a crawlspace, located below the eastern portion of the building. The contaminated crawlspace sediments were removed in 2001.[2, 3] However, strong petroleum odors have been detected in the crawlspace since the contaminated sediments were removed (Steve Bremer, Washington Department of Ecology, personal communication, August 20, 2002).

Some of the mall tenants complained about petroleum odors in their shops and reported adverse health effects in 2001. One of these tenants was located adjacent to the crawlspace with the petroleum contaminated sediments. DOH conducted a health consultation in response to these concerns by evaluating available environmental data collected at the mall, which included the results of indoor air sampling conducted in April 2001. On the basis of its evaluation of the data, DOH recommended two additional rounds of indoor air sampling, one during the summer and the other during the winter, to provide information about possible seasonal differences in indoor air quality. DOH also recommended building maintenance measures that could be taken to reduce potential exposures (e.g., seal floor drains and cracks in the foundation).

Discussion

The proposed sampling and analytical plan provides only a brief description of the planned activities for evaluating indoor air quality at the Old Milltown Mall. The following items summarize DOH's comments on the plan:

1. The plan indicates that the soil in the crawlspace does not pose a threat to human health.[1] This should be reworded to indicate that while direct contact with soil is not of concern, characterizing the potential for volatilization of contaminants from soil into indoor air is necessary.

2. The plan indicates the indoor air results will be used to identify potential inhalation risks

associated with petroleum contaminated soils.[1] This should be reworded to indicate chemicals other than petroleum might also be associated with contaminated soil. The building was historically used for bus building and maintenance and auto servicing, both potential sources of volatile chemicals such as solvents.

3. Only one additional indoor air sampling round is proposed to evaluate indoor air quality at the mall.[1] Although it is possible that a winter indoor air sampling event would represent a worst-case scenario, there is no information provided in the proposed plan to support such a limited sampling approach for this facility.

4. Three indoor air sampling locations are proposed in the plan: Designer Consigner shop, Silver Rose shop, and the third-floor hallway, which are the locations sampled in 2001. Resampling indoor air at the Designer Consigner and Silver Rose locations is appropriate because the occupants at these locations reported petroleum odors in the past. A portion of the third floor is likely underlain by the crawlspace where the petroleum odors have been detected (Bob Bliss, Prezant Associates, personal communication, August 20, 2002). Therefore, resampling the third floor is appropriate. However, the hallway sample should be collected in an area where it overlies the contaminated crawlspace. If only third floor shops overlie the contaminated crawlspace, then a shop rather than the hallway should be selected as a sampling location. An additional indoor air sample also should be collected in one of the shops located near the abandoned UST, where petroleum contaminated soils remain. All indoor air samplers should be set at a height corresponding to the breathing level.

5. An air sample should be collected in the crawlspace during the indoor air sampling to determine whether the crawlspace is a likely source of indoor air contaminants.

6. The plan indicates that an ambient air sample will be collected at roof level.[1] The sample should be collected away from building materials, any stored chemicals, or any other materials that contain petroleum or volatile organic compounds.

7. Weather conditions should be recorded during the indoor air sampling. Indoor and outdoor temperatures and barometric pressure also should be measured and recorded.

8. Analytical reporting limits were mentioned but not included in the plan. The reporting limits should be compared to health comparison values and background levels to determine whether the proposed analytical methods will provide suitable results for health evaluation purposes. It should be noted that health comparison values, which are summarized in DOH's September 2001 health consultation report, might differ somewhat from Ecology's Model Toxics Control Act (MTCA) cleanup levels. Selected ion mode (SIM) is a procedure for achieving lower detection limits for analytical methods such as TO-15.

   The health comparison values reported in DOH's health consultation for trichloroethene

(TCE) and tetrachloroethene (PCE) have changed to reflect new toxicological data available from EPA.[5,6] The TCE health comparison value changed from 537 micrograms per cubic meter (ug/m^3) to 0.009 ug/m^3; the PCE value changed from 271 ug/m^3 to 1.8 ug/m^3. These lower health comparison values, however, might be below background levels for these chemicals. DOH can provide references for the selection of suitable background level that could serve as a detection limit for TCE and PCE.

Child Health Initiative

Children could be exposed to contaminants in indoor air at the Old Milltown Mall. Because children can be uniquely vulnerable to the hazardous effects of environmental contaminants, DOH will consider childhood exposures when evaluating the indoor air sampling data at this site.

Conclusions

The *Indoor and Ambient Air Sampling and Analysis Plan for the Old Milltown Mall* requires modification to ensure that representative air samples are collected to support DOH's evaluation of the potential health affects associated with the mall.

Recommendations/Action Plan

The following recommendations summarize those presented and discussed above.

- The indoor and ambient air sampling and analysis plan objectives and rationale need to be clarified,
- sampling locations added or modified,
- field parameters measured, and
- analytical reporting limits should be set below comparison values and background levels, where possible.

Action

The *Indoor and Ambient Air Sampling and Analysis Plan for the Old Milltown Mall* is being modified to include DOH's recommendations (Kevin Grossman, Lorig Management, personal communication, February 25, 2003).

Preparer of Report

Barbara J. Trejo
Washington State Department of Health
Office of Environmental Health Assessments
Site Assessment Section

Designated Reviewer

Robert Duff, Manager
Site Assessment Section
Office of Environmental Health Assessments
Washington State Department of Health

ATSDR Technical Project Officer

Debra Gable
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation

References

1. Prezant Associates. Indoor and ambient air sampling and analysis plan for the Old Milltown Mall. Seattle, Washington: Prezant Associates; 2003 Jan.12.

2. Thorne Environmental. Results of limited subsurface exploration and soil sampling, Old Mill Site, Edmonds, Washington. Lynnwood, Washington: Thorne Environmental; 1989 Jul 6.

3. Snohomish Health District. Initial investigation summary report. April 5, 2001.

4. Washington Department of Health. Old Mill Town Mall, Edmonds, Snohomish County, Washington, health consultation. Olympia, Washington: Washington Department of Health; 2001 Sep 27.

5. U.S. Environmental Protection Agency. Trichloroethylene health risk assessment: Synthesis and characterization. Washington, DC: US Environmental Protection Agency; 2001 Aug.

6. U.S. Environmental Protection Agency, Superfund Technical Support Center. Risk assessment issue paper for: Carcinogenicity information for tetrachloroethylene. Washington, DC: US Environmental Protection Agency; 2001 Oct 25.

Certification

The Washington State Department of Health prepared this health consultation under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). The document is in accordance with approved methodology and procedures existing at the time the health consultation was begun.

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Debra Gable
Technical Project Officer,
SPS, SSAB, DHAC
ATSDR

The Division of Health Assessment and Consultation, ATSDR, has reviewed this public health consultation and concurs with the findings.

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Roberta Erlwein
Section Chief,
SPS, SSAB, DHAC
ATSDR